

Taxonomic Notes on *Ophiopogon* of South Asia IX

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A new combination, *Ophiopogon caulescens* (Blume) Backer var. *prolifer* (Lindl.) N.Tanaka, is proposed. This variety differs from var. *caulescens* by the staminal filaments united laterally along their entire length and in the range of distribution. *Ophiopogon siamensis* M.N.Tamura described recently from Thailand is treated as conspecific with *O. cordylinoides* Prain from Myanmar. It became evident that *O. cordylinoides* is also distributed in India and China. This species appears to be close to both *O. caulescens* and *O. dracaenoides* (Baker) Hook.f.

(Continued from J. Jpn. Bot. 75: 265–269, 2000)

Key words: New combination, *Ophiopogon caulescens* var. *prolifer*, *Ophiopogon cordylinoides*, *Ophiopogon siamensis*, taxonomy

(17) *Ophiopogon prolifer* as a variety of *O. caulescens*

In a previous paper (Tanaka 2000) *Ophiopogon prolifer* Lindl. (Fig. 1) was treated as conspecific with *O. caulescens* (Blume) Backer. As already reported there, the two species differ in the character of staminal filaments; viz., in *O. prolifer* the filaments are united laterally along their entire length (Fig. 6A in Tanaka 2000), while in *O. caulescens* they are united approximately halfway from the base up (Fig. 6B in Tanaka 2000). In addition, the geographical ranges of the two species do not overlap; *O. prolifer* is distributed in the Malay Peninsula, while *O. caulescens* in Sumatra, Java, Borneo and the Philippines. Considering these differences, *O. prolifer* is here treated as a variety of *O. caulescens*.

Ophiopogon malayanus Ridl. was also treated as conspecific with *O. caulescens* (incl. *O. prolifer*) in my previous paper

(Tanaka 2000). In the present survey I had an opportunity to examine two syntypes of *O. malayanus* (C. Curtis 2643, SING, Fig. 2; W. Fox 112, SING) and found that they are exactly identical with *O. caulescens* var. *prolifer* (Fig. 1). Ridley (1907, 1924) described the stamens of *O. malayanus* as quite free, but the present survey revealed that their filaments are united laterally along their entire length, while their anthers are certainly free. These features coincide well with *O. caulescens* var. *prolifer*.

Ophiopogon caulescens (Blume) Backer, Handb. Fl. Java 3: 74 (1924), excl. *Chloopsis acaulis* Blume; N.Tanaka in J. Jpn. Bot. 75: 71 (2000).

Chloopsis caulescens Blume, Enum. Pl. Jav. 14 (1827). TYPE: Java, C. L. Blume (holotype, L ?, not seen).

var. ***caulescens***

Ophiopogon japonicus auct. non (Thunb.)

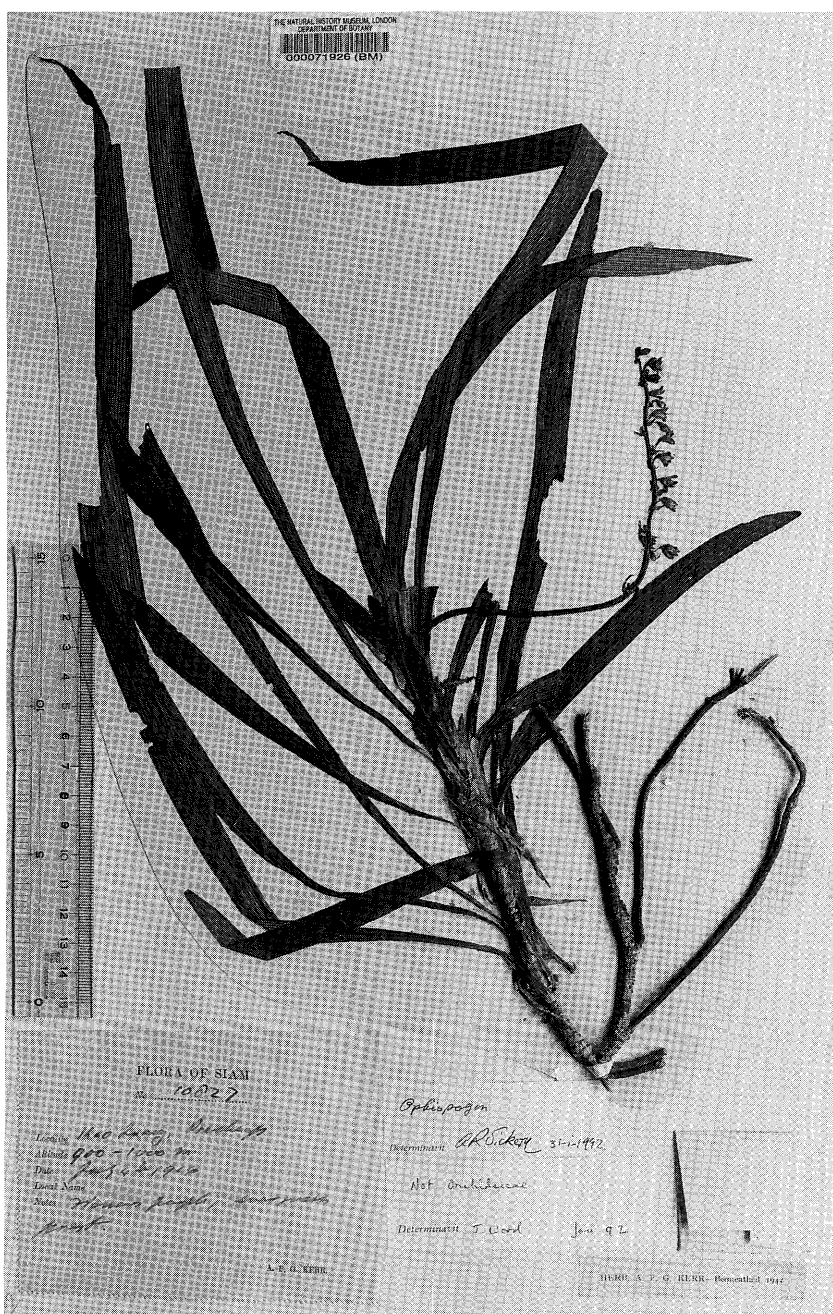


Fig. 1. *Ophiopogon caulescens* var. *prolifer* (= *O. prolifer*) (Kao Luang, Prachuap, Thailand, A. F. G. Kerr 10827, BM).

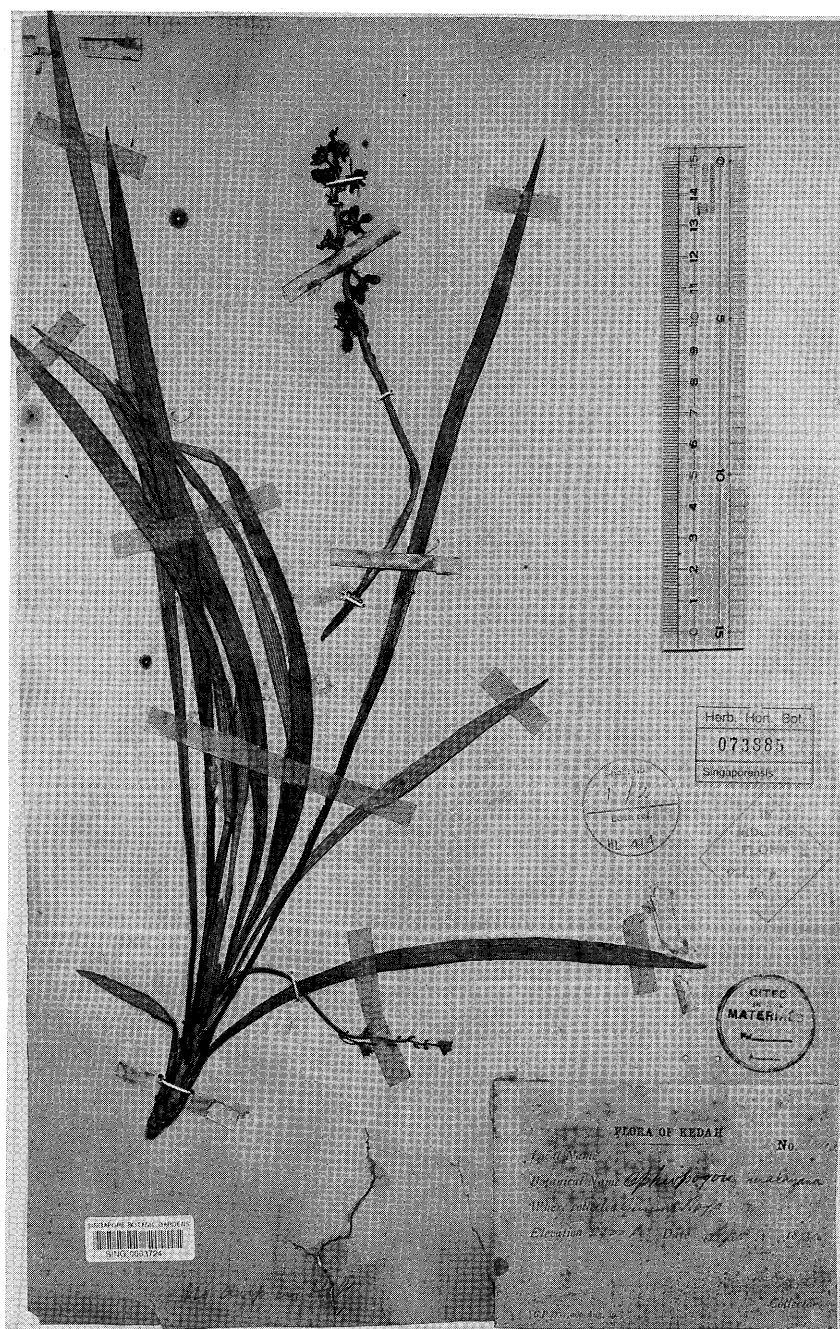


Fig. 2. Syntype of *Ophiopogon malayanus* Ridl. (Kedah, Malaysia, C. Curtis 2643, SING).
This species is identical with *O. caulescens* var. *prolifer*.

Ker Gawl.: Koord., Excurs.-fl. Java 1: 296 (1911), p. p., '(L.f.)'.

O. malayanus auct. non Ridl.: Merr. in J. Str. Br. Roy. As. Soc. Special number 115 (1921); Enum. Philip. Flow. Pl. 1: 207 (1923).

O. caulescens (Blume) Backer in N.Tanaka in J. Jpn. Bot. 75: 71 (2000), p. p., quoad fig. 1, 6B, et specim. ex Malaysia (Borneo), Indonesia (Sumatra, Java, Borneo), Philippines.

Distribution: Malaysia (Borneo), Indonesia (Sumatra, Java, Borneo) and the Philippines.

For specimens examined see those cited in Tanaka (2000).

var. **prolifer** (Lindl.) N.Tanaka, stat. nov.

Ophiopogon prolifer Lindl. in J. Roy. Hort. Soc. 1: 76 (1846). TYPE: Malaysia. Penang, T. Lewis (not located, not seen). A sketch of this specimen drawn from Cambridge herbarium on July 1, 1880 is in K! (reproduced in Fig. 2 in Tanaka 2000).

[Figs. 1, 2]

Flueggea ? *prolifera* Baker in J. Linn. Soc. 17: 502 (1879), '*Fluggea*'.

Ophiopogon malayanus Ridl. in J. Str. Br. Roy. As. Soc. 41: 34 (1904); Mat. Fl. Mal. Pen. 2: 91 (1907); Fl. Mal. Pen. 4: 327 (1924). TYPE: Malaysia. Malay Peninsula. Kedah, Gunong Raya, 2500 ft., Sept. 1890, fl.-fr., C. Curtis 2643 (syntype, SING!); Malaysia. Malay Peninsula. Perak, Rengas, 4000 ft., Oct. 1899, buds, W. Fox 112 (syntype, SING!).

Mondo japonicum (Thunb.) Farw. var. *proliferum* (Lindl.) Farw. in Amer. Midl. Nat. 7: 42 (1921), auct. speciei '(L.f.)'.

M. malayanum (Ridl.) Farw. in Amer. Midl. Nat. 7: 42 (1921).

Ophiopogon caulescens (Blume) Backer in N.Tanaka in J. Jpn. Bot. 75: 71 (2000), p.p., quoad fig. 2, 3, 6A, et specim. ex Malay Peninsula (Thailand, Malaysia).

Distribution: S Thailand (Malay Peninsula) and SW Malaysia (Malay Peninsula).

For other specimens examined see those cited in Tanaka (2000).

(18) *Ophiopogon cordylinoides* and the identity of *O. siamensis*

Ophiopogon cordylinoides Prain was described from northeastern Myanmar (King and Prain 1898). This species (Figs. 3–5) is identical in all respects with *O. siamensis* recently described by Tamura (1998) from northern Thailand. The present survey also confirmed that *O. cordylinoides* is distributed not only in Myanmar (Fig. 3) and Thailand but also in eastern India and southwestern China (Fig. 4).

In both vegetative and floral characters *Ophiopogon cordylinoides* (Figs. 3–5) bears a close resemblance to *O. caulescens* (Blume) Backer (Figs. 1, 2) which is distributed in the more southern regions (for *O. caulescens* see chapter 17 and Tanaka 2000). For example, these two species share an ovary which is concave at the center of the top (or an obcordate ovary) (Fig. 5; for *O. caulescens* see Figs. 6A and 6B in Tanaka 2000) and an elongate stem with ligneous stilt roots (Figs. 1, 4). On the other hand, they also have some differences as follows: the filaments of *O. cordylinoides* are free or almost free to the base (Fig. 5), while those of *O. caulescens* are united laterally along their entire length (var. *caulescens*) or in their lower half (var. *prolifer*), as stated earlier (chapter 17). The anthers of *O. cordylinoides* are 2.9–3.7 mm long, while those of *O. caulescens* are 1.7–2.8 mm long (Tanaka 2000). In *O. cordylinoides* the upper part of the stem bearing (active) leaves is 9–26 cm long, being usually longer than that in *O. caulescens* which is 2–6 (–15) cm long in var. *caulescens*, or 4–8.5 cm long in var. *prolifer*. In *O. cordylinoides* the leaves are tufted at intervals of ca. 3–11 cm on the stem (Figs. 3, 4). But, in *O. caulescens* the interval (between the tufts of leaves) tends to be shorter, being up to 4 (–6) cm in var.

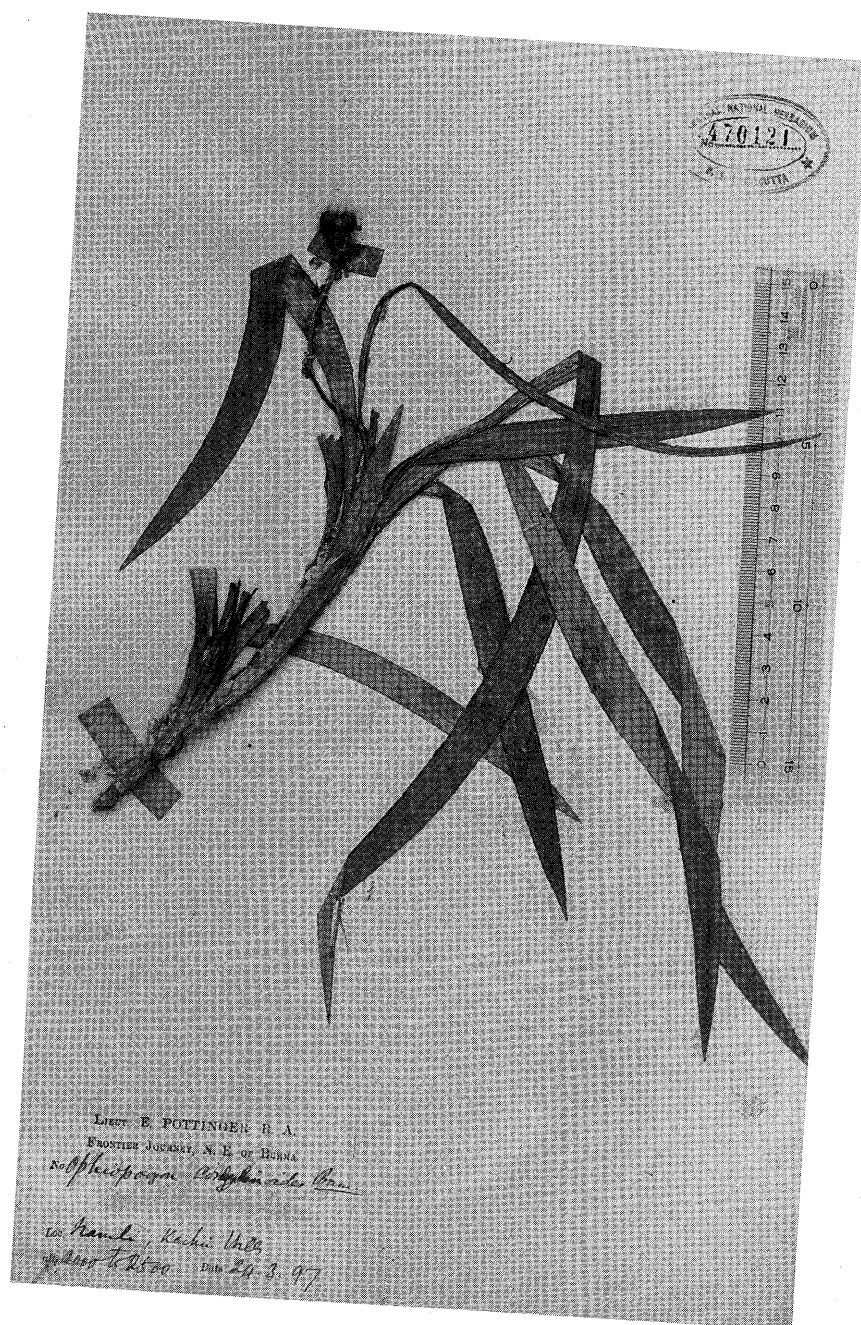


Fig. 3. Syntype of *Ophiopogon cordylinoides* from northeastern Myanmar (Namli, Kachin Hills, E. Pottinger s.n., CAL).

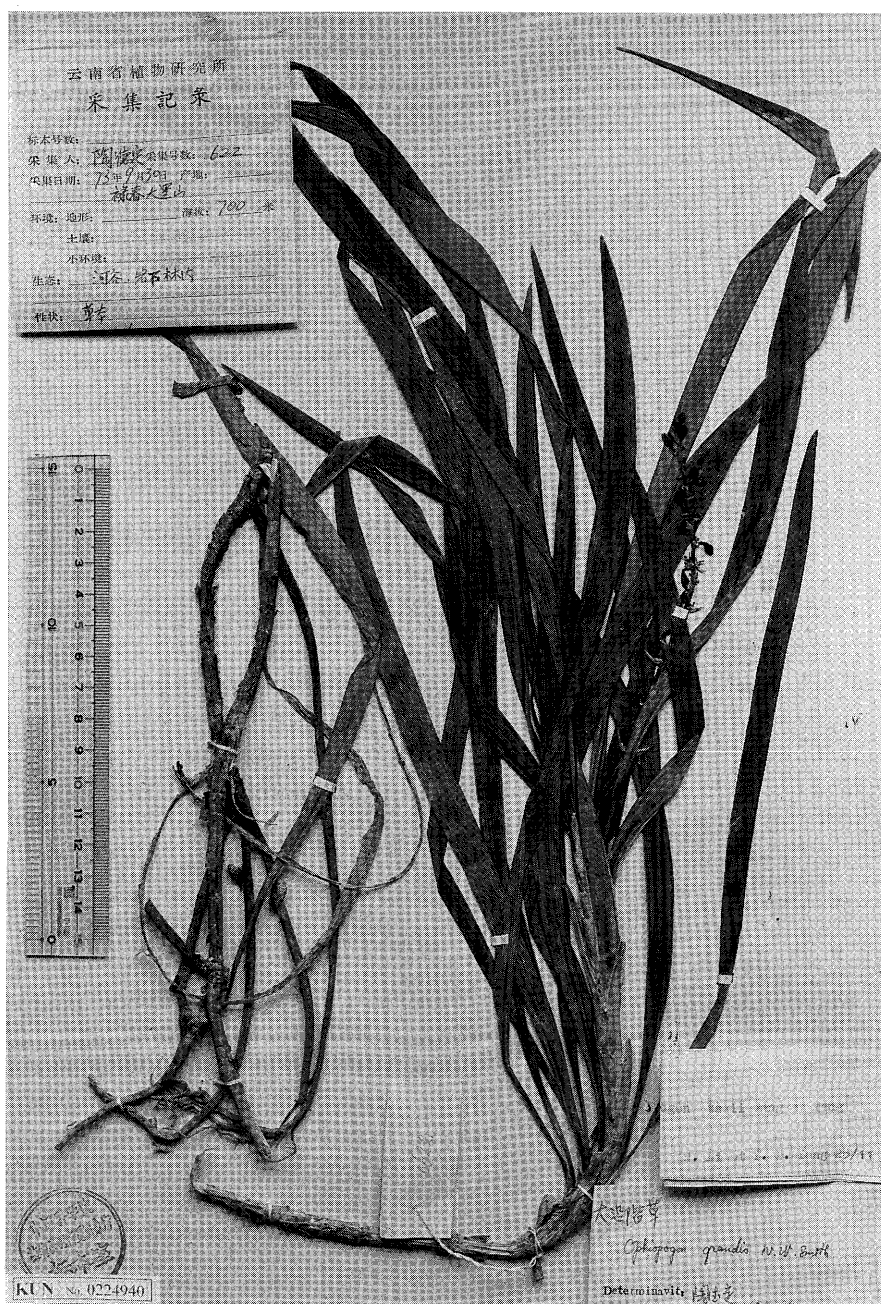


Fig. 4. *Ophiopogon cordylinoides* from southern Yunnan, China (Luchun, D. D. Tao 622, KUN).

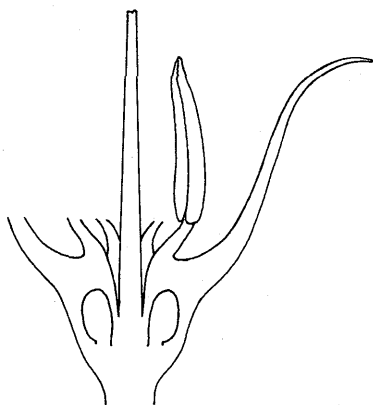


Fig. 5. Diagram of flower of *Ophiopogon cordylinoides* (lateral view).

caulescens, or up to 3 cm in var. *prolifer* (Fig. 1). The bracts of *O. cordylinoides* are usually more scarious than those of *O. caulescens* which tend to be foliaceous.

Ophiopogon cordylinoides is also close in basic habits to *O. dracaenoides* (Baker) Hook.f. (for the latter see Tanaka 2000). As in the former, *O. dracaenoides* has an ovary which tends to be concave at the center of the top (Fig. 6C in Tanaka 2000) and an elongate stem with leaves fasciculate at intervals. However, the leaves of *O. cordylinoides* are usually longer and more slender (up to ca. 41 cm long and 1.9 cm wide; Figs. 3, 4) than in *O. dracaenoides* (up to ca. 21.5 cm long and 3.7 cm wide; cf. Tanaka 2000), and hence the two species can be distinguished.

Ophiopogon cordylinoides Prain in King and Prain in J. Asiat. Soc. Bengal **67**: 300 (1898). TYPE: N.E. of Burma, Namli, Kachin Hills, 2000 to 2500 (ft.), March 24, 1897, fr., E.Pottinger s.n. (syntype, CAL 470121!); Upper Burma, Kachin Hills, 1897, fl., S. Mokim s.n. (? syntype, CAL 470123!, K!). [Figs. 3–5]

Mondo cordylinoides (Prain) Farw. in Amer. Midl. Nat. **7**: 42 (1921).

Ophiopogon siamensis M.N.Tamura in Acta Phytotax. Geobot. **49**: 27 (1998), syn. nov. TYPE: Thailand. Northern Region, Chiang Mai Province, Doi Inthanon, 1670–1700 m, M.N.Tamura 7004 (holotype, KYO; isotypes, BKF, OSA; not seen).

O. tsaii auct. non F.T.Wang & Ts.Tang: Y.P.Yang & H.Li in Acta Bot. Yunnan., Suppl. **3**: 77 (1990), p.p. ?, saltem quoad specim. J. S. Yang 5162 (KUN!).

O. latifolius auct. non L.Rodr.: Y.P.Yang & H.Li in Acta Bot. Yunnan., Suppl. **3**: 79 (1990), p.p., saltem quoad specim. K.M.Feng 13385 (KUN!).

O. cf. reptans auct non Hook.f.: M.N.Tamura in Shoei Jr. Coll. Ann. Rep. Stud. **23**: 64 (1991).

Glabrous perennial herb. Stem decumbent in lower part, suberect to erect in upper part, to more than 63 cm long, to ca. 7 mm in diameter, covered usually with remnants of leaf-sheath, in lower part emitting woody long prop roots to 3.5 mm in diameter. Leaves fasciculate at intervals on stem, linear to broadly linear, attenuate at both ends, sheathing with scarious alae at base, often falcate, serrulate on margins, with 8–20 longitudinal veins, glaucous beneath, to 40.5 cm long, 0.5–1.9 cm wide. Scape declinate, ancipital, fluted, often tinged purple, to 23 cm long. Inflorescence racemose. Flowers 1–4 in axils of bracts. Bracts ovate to lanceolate, acute, acuminate or caudate, margins scarious, serrulate in upper part, to 2 cm long. Pedicels jointed in or around middle, to 8.5 mm long. Perianth lobes 6, ovate to ovate-oblong, recurved in upper part, 4.5–5.5 mm long, 2–2.9 mm wide. Stamens 6. Anthers lanceolate, often apiculate at apex, cordate at base, introrse, 2.9–3.7 mm long. Filaments free or very shortly connate at base, 0.3–0.8 mm long. Pistil 1. Style subulate, 5–5.8 mm long. Ovary inferior, concave at apex, 3-locular; ovules 2 in each locule, collateral, basal. Seeds globose.

Distribution: E India, N Myanmar,

Thailand and SW China (S and SW Yunnan).

Additional specimens examined:

India. Assam. Mechangbung, Naga Hills, 5000 ft., fls white, tipped purple, Sept. 5, 1935, fl., N. L. Eor 6479 (K).

Myanmar. Upper Burma, Katchin Hills, Pooitong ?, 4000 ft., Aug. 1899, fl., S. Mokim s.n. (no.158 ?) (CAL 470118); Kadu Hill, Katha distr., 3500 ft., Feb. 23, 1910, fr., J. H. Lace 5135 (E, K); Maymyo, Kyundaing Ywa, fls purple and white, June 5, 1938, fl., C. E. Parkinson 16377 (K).

Thailand. Doi Pa Kao, Hui Luk drainage, 1480 m, fls white except lip of petals, Sept. 9, 1931, fl., H. B. G. Garrett 722 (BM, K); Chiang Mai, Doi Intanon, 1400–1700 m, Sept. 11, 1974, fl., K. Larsen & S. S. Larsen 34422 (P); Chiang Mai, Doi Intanon, 1700 m, Dec. 10, 1984, fr., T. Yahara & H. Nagamasu T-50061 (L); Doi Inthanon, 1300–1500 m, Jan. 10, 1958, H. Osawa & K. Yoda, Osaka City Univ. Biol. Exped. 109, 110 (TI); Chiang Mai, Doi Nang Ka, Nov. 18, 1930, fr., Put 3469 (K, L, P); Chiang Mai, Muang, Doi Sutep-Pui National Park, 1250 m, Feb. 20, 1991, fr., J. F. Maxwell 91-188 (E); Chiang Mai, Muang, Doi Sutep-Pui National Park, east side of Doi Pui, 1450 m, Dec. 7, 1989, fr., J. F. Maxwell 89-1521 (E); Chaiyaphum, Tunkamang, 800 m, Dec. 17, 1971, fr., C. F. van Beusekom et al. 4402 (L); Nakhon Nayok prov.,

Kao Yai National Park, ca. 450–500 m, Oct. 15, 1984, fr., G. Murata et al. T-52568 (KYO).

China. Yunnan. Luchun, Daheishan, 700 m, Sept. 30, 1973, fl., fls purple, D. D. Tao 622 (KUN); Luchun, Mt. Huanglianshan, Mayu, 840–1300 m, Nov. 1, 1995, fr., S. K. Wu et al. 838 (MAK); Marlipo, Tungting, 1000–1200 m, Nov. 18, 1947, fr., K. M. Feng 13385 (KUN); Tsuang Yuan, 1200 m, Apr. 1936, C. W. Wang 73158 (PE); Gengma, Aug. 22, 1965, fl., J. S. Yang 5162 (KUN); Mengla, 550 m, Oct. 4, 1959, fl., S. J. Pei 59-10644 (KUN).

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Reference

Tanaka N. 2000. Taxonomic notes on *Ophiopogon* of South Asia V. J. Jpn. Bot. 75: 69–79.

田中教之：南アジア産ジャノヒゲ属の分類学的検討 IX

筆者は以前に *Ophiopogon prolifer* を *O. caulescens* と同種として扱った (Tanaka 2000)。しかし、*O. prolifer* の花糸はその側面で全長にわたって合生するが、*O. caulescens* (s. str.) の花糸はそのほぼ下半部で合生するという違いがある (Tanaka 2000)。さらに、両種の分布域は隣接するが重ならない (Tanaka 2000)。これらの相違を考慮し、本報告では *O. prolifer* を *O. caulescens* の変種として扱い、新名 *O. caulescens* var. *prolifer* を提示した。var. *prolifer* はマレー半島に分布し、var. *caulescens* はスマトラ、ジャワ、ボルネオ、フィリピンに分布する。*O. malayanus* は *O. caulescens* var. *prolifer* と同じ分類群であることを syntypes

に基づいて今回確認した。ミャンマー北部から記載された *O. cordylinoides* は、最近 Tamura (1998) によってタイ北部から記載された *O. siamensis* と同一種である。本種は、ミャンマー、タイの他、インド東部、中国西南部（雲南省西南部～南部）にも分布していることが新たに判明した。*O. cordylinoides* は *O. caulescens* に大変近い種であるが、花糸間の合生がほとんどないこと、茎に束生する葉の間隔が概してより長く、葉をつけた茎の部分も一般的により長いことなどで後者と異なる。*O. cordylinoides* は *O. dracaenoides* にも近縁と思われるが、前者の葉は後者より一般により細長いことなどで区別される。（帝京大学文学部教育学科）